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The Effectiveness of Emotional Schema Therapy on Executive Functions in Adolescents with Emotional Dysregulation in Isfahan

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A B S T R A C T

Objective: The present study aimed to investigate the effectiveness of Emotional Schema Therapy on the executive functions of adolescents with emotional dysregulation.

Materials and Methods: This study employed a quasi-experimental design with a pretest–posttest control group. The statistical population consisted of middle and high school students in Isfahan during 2025 who had been referred to educational counseling centers. The sample included 30 adolescents selected through purposive sampling from individuals with low emotion regulation scores and randomly assigned to an experimental group and a control group (15 participants in each group). The research instruments included the Executive Functions Questionnaire and the Difficulties in Emotion Regulation Scale. The experimental group received Emotional Schema Therapy in twelve 60-minute sessions. Data were analyzed using Multivariate Analysis of Covariance (MANCOVA).

Findings: The results indicated that after the intervention, there was a significant difference between the experimental and control groups regarding the dimensions of executive functions ($p < .01$). Specifically, executive functions improved in the experimental group.

Conclusion: The findings suggest that Emotional Schema Therapy is effective in improving the cognitive-behavioral components of adolescents with emotional dysregulation. This therapeutic approach may serve as an effective intervention in counseling and treatment programs for adolescents.

Keywords: *Emotional Schema Therapy, Executive Functions, Emotional Dysregulation.*

1. Introduction

Adolescence is a critical developmental period characterized by rapid biological, cognitive, emotional, and social changes that shape individuals' psychological adjustment and future well-being. During this transitional stage, adolescents encounter numerous developmental challenges that require the acquisition of effective emotional, cognitive, and behavioral regulation skills. The successful navigation of these challenges contributes to healthy psychological development, whereas difficulties in adaptation may increase vulnerability to emotional and behavioral problems (Mohseni & Ahadinezhad, 2002). Research has consistently shown that adolescence is associated with heightened emotional reactivity, identity exploration, increased sensitivity to interpersonal relationships, and greater exposure to social and academic stressors. Consequently, this period represents a particularly important stage for the emergence and maintenance of psychological difficulties, including emotional dysregulation, behavioral problems, anxiety, depression, and impaired psychosocial functioning (Anisi et al., 2007).

Emotional dysregulation is increasingly recognized as a transdiagnostic construct underlying a broad range of psychological disorders. It refers to difficulties in understanding, accepting, managing, and responding adaptively to emotional experiences. Adolescents with emotional dysregulation often struggle to identify their emotions accurately, regulate emotional intensity, tolerate distress, and employ effective coping strategies. These difficulties can contribute to maladaptive behaviors, interpersonal conflicts, academic problems, and reduced quality of life. Contemporary psychological research has highlighted emotional dysregulation as a central factor in the development and persistence of numerous emotional and behavioral disorders, making it an important target for prevention and intervention efforts (Wang et al., 2020). Furthermore, emotional dysregulation during adolescence may interfere with developmental processes that are essential for social competence, emotional maturity, and psychological resilience, thereby increasing the risk of long-term maladjustment (Saadatian & Shirafkan, 2018).

Among the various psychological processes affected by emotional dysregulation, executive functions occupy a particularly important position. Executive functions are a set of higher-order cognitive processes that facilitate goal-directed behavior, self-regulation, planning, decision-making, working memory, inhibitory control, attentional flexibility, and behavioral monitoring. These functions enable individuals to adapt effectively to changing environmental demands and regulate their thoughts, emotions, and actions. Executive functions are closely associated with prefrontal cortical development and continue to mature throughout adolescence. Consequently, disruptions in emotional regulation during this developmental period may adversely affect executive functioning, resulting in difficulties in academic performance, social interactions, and psychological adjustment (Mohseni & Ahadinezhad, 2002). Research has demonstrated that impairments in executive functioning are associated with increased impulsivity, poor emotional control, ineffective problem-solving, and maladaptive behavioral responses, all of which are commonly observed among adolescents experiencing emotional dysregulation (Anisi et al., 2007).

The relationship between emotions and executive functions has received considerable empirical attention in recent years. Emotional experiences influence attentional allocation, cognitive flexibility, memory processes, and behavioral decision-making. When emotional responses become overwhelming or poorly regulated, cognitive resources that are necessary for executive functioning may be compromised. Psychological equilibrium and emotional stability have been identified as important mechanisms that support adaptive cognitive functioning and overall well-being. Evidence suggests that psychological balance facilitates effective self-regulation and adaptive behavioral responses, whereas emotional instability may contribute to cognitive inefficiencies and impaired executive control (Jiang et al., 2025). Similarly, research in mental health contexts has emphasized the importance of creating supportive environments that promote emotional security, belongingness, and psychological adjustment, thereby facilitating adaptive cognitive and emotional functioning (Lazaridou & Heinz, 2021).

Theoretical perspectives within developmental and cognitive psychology have long emphasized the role of cognitive structures and schemas in shaping emotional experiences and behavioral responses. According to schema theory, individuals develop enduring cognitive and emotional patterns based on early life experiences, interpersonal interactions, and environmental influences. These schemas influence how individuals interpret events, regulate emotions, and respond to challenges. When schemas become maladaptive, they may contribute to

dysfunctional emotional reactions, distorted beliefs, and ineffective coping strategies. Adolescents are particularly susceptible to the formation and reinforcement of maladaptive schemas because of the developmental transitions and psychosocial challenges they encounter during this period (Young & Klosko, 2003). Research has shown that maladaptive schemas are associated with emotional difficulties, behavioral problems, and reduced social functioning, highlighting their relevance to adolescent mental health (Shahvarooghi Farahani, 2022).

Schema Therapy, developed by Young and colleagues, integrates principles from cognitive-behavioral, attachment, psychodynamic, and experiential approaches to address maladaptive schemas and their emotional consequences (Young & Klosko, 2003). Numerous studies have demonstrated the effectiveness of schema-based interventions in reducing psychological symptoms and improving emotional functioning across various clinical populations. A large multicenter randomized controlled trial found Schema Therapy to be highly effective in treating personality disorders, producing significant and enduring improvements in psychological functioning compared with alternative treatment approaches (Bamelis et al., 2014). These findings have contributed to the growing recognition of schema-focused approaches as valuable interventions for addressing complex emotional and cognitive difficulties.

Building upon traditional schema therapy, Emotional Schema Therapy (EST) was developed to specifically target individuals' beliefs, interpretations, and responses regarding their emotional experiences. Emotional Schema Therapy proposes that psychological distress is often maintained not only by emotions themselves but also by maladaptive beliefs about emotions, such as viewing emotions as unacceptable, dangerous, uncontrollable, or shameful. These emotional schemas influence how individuals process, express, and regulate their emotions. By modifying dysfunctional emotional beliefs and promoting emotional acceptance, validation, and adaptive expression, Emotional Schema Therapy seeks to enhance emotional regulation and psychological flexibility (Young & Klosko, 2003). This approach is particularly relevant for adolescents, who frequently experience intense emotional states and may struggle to develop adaptive emotional coping strategies.

Empirical evidence supporting Emotional Schema Therapy has expanded considerably in recent years. Studies have demonstrated its effectiveness in improving emotional regulation, reducing psychological distress, and enhancing overall functioning. For example, Emotional Schema Therapy has been shown to significantly improve emotional self-regulation and reduce grief-related symptoms among individuals experiencing emotional difficulties (Khakpour & Paeizi, 2024). Similarly, research involving adolescents with social anxiety disorder found that Emotional Schema Therapy effectively reduced psychological distress, enhanced quality of life, and improved cognitive emotion regulation capacities (Ahmadi & Kadkhodaei, 2023). These findings suggest that modifying maladaptive emotional beliefs can lead to meaningful improvements across multiple domains of psychological functioning.

Additional evidence indicates that Emotional Schema Therapy may be particularly beneficial for adolescents experiencing behavioral and emotional difficulties. In a study involving adolescents with oppositional defiant disorder, Emotional Schema Therapy significantly improved emotion regulation strategies and contributed to better emotional functioning (Ghaitasi & Amani, 2025). Such findings are important because difficulties in emotion regulation are often associated with executive function impairments, suggesting that interventions targeting emotional schemas may also influence cognitive processes related to self-regulation and behavioral control. Furthermore, psychoeducational and psychologically informed interventions that enhance emotional awareness and treatment adherence have been found to improve functionality and adaptive outcomes among individuals with psychiatric conditions, underscoring the value of interventions that address emotional processing and regulation (Harmancı & Yıldız, 2023).

The theoretical rationale for expecting improvements in executive functioning following Emotional Schema Therapy is grounded in the close relationship between emotional regulation and cognitive control processes. Executive functions require the efficient allocation of attentional resources, inhibition of maladaptive responses, flexible adaptation to changing demands, and effective monitoring of behavior. Maladaptive emotional schemas may interfere with these processes by increasing emotional distress, cognitive rigidity, and behavioral impulsivity. Emotional Schema Therapy seeks to reduce these barriers by fostering emotional acceptance, reducing experiential avoidance, challenging dysfunctional beliefs about emotions, and promoting adaptive emotional processing. Consequently, improvements in emotional regulation may facilitate better executive functioning by freeing cognitive resources and enhancing self-regulatory capacity (Ahmadi & Kadkhodaei, 2023; Khakpour & Paeizi, 2024).

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Although previous research has provided substantial evidence regarding the effectiveness of Emotional Schema Therapy for emotional and psychological outcomes, relatively limited attention has been devoted to its potential impact on executive functions among adolescents with emotional dysregulation. Given the central role of executive functions in academic achievement, social adjustment, behavioral regulation, and long-term psychological well-being, investigating interventions capable of enhancing these cognitive processes represents an important area of inquiry. Furthermore, adolescence provides a unique developmental window during which emotional and cognitive systems are highly malleable, creating opportunities for therapeutic interventions to produce lasting benefits. Existing developmental and psychological research emphasizes that emotional experiences, social environments, cognitive schemas, and self-regulatory processes interact dynamically during adolescence, influencing both psychological adjustment and executive functioning (Lazaridou & Heinz, 2021; Massen et al., 2011; Mohseni & Ahadinezhad, 2002). Therefore, interventions targeting emotional schemas may hold significant promise for promoting adaptive cognitive and emotional development among adolescents experiencing emotional dysregulation.

Accordingly, the present study aimed to investigate the effectiveness of Emotional Schema Therapy on executive functions among adolescents with emotional dysregulation in Isfahan.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a quasi-experimental design using a pretest–posttest control group format. Participants were allocated to groups through random assignment following the sampling process. The target population consisted of all adolescents residing in Isfahan, Iran, during 2025. A purposive sampling method was used to recruit participants from students who had been referred to educational counseling centers and met the study eligibility criteria. Initially, adolescents were screened using the Difficulties in Emotion Regulation Scale (DERS), and those who obtained scores higher than 60 were considered eligible for participation. Additional inclusion criteria included being enrolled in either lower secondary or upper secondary school and being between 13 and 18 years of age. Exclusion criteria consisted of absence from more than two treatment sessions or failure to complete assigned therapeutic exercises. A total of 30 adolescents who met the inclusion criteria were selected and subsequently assigned through simple randomization to either the experimental group (n = 15) or the control group (n = 15). Participants in the experimental group received Emotional Schema Therapy, whereas those in the control group did not receive any psychological intervention during the study period

2.2. Measures

The Behavioral Rating Inventory of Executive Function (BRIEF), Teacher Form, developed by Gioia, Isquith, Guy, and Kenworthy (2000), was used to assess executive functioning in adolescents. The BRIEF is a comprehensive instrument designed to evaluate executive functions among children and adolescents aged 5 to 18 years in naturalistic settings such as school and home environments. The questionnaire consists of 86 items rated on a three-point Likert scale ranging from 1 (Never) to 3 (Always). Total scores range from 30 to 172, with higher scores reflecting greater executive functioning difficulties. The instrument assesses multiple domains of executive functioning, including inhibitory control, cognitive flexibility, emotional regulation, initiation, working memory, planning and organization, organization of materials, and monitoring. The BRIEF has been extensively used in clinical and educational settings, particularly among individuals with neurodevelopmental disorders, attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder, learning disabilities, Tourette syndrome, intellectual disabilities, and acquired brain injuries. Psychometric studies have demonstrated excellent reliability for the instrument, with reported test–retest coefficients of .88 for teacher ratings and .82 for parent ratings. Internal consistency coefficients have also been reported at approximately .88 for the teacher form. Evidence supporting the validity of the BRIEF has been established through significant correlations with other measures of behavioral and emotional functioning and its ability to distinguish children with ADHD from typically developing peers.

Emotion dysregulation was assessed using the Difficulties in Emotion Regulation Scale (DERS), developed by Gratz and Roemer (2004). The DERS is a self-report measure consisting of 36 items designed to evaluate multiple dimensions of emotion regulation difficulties. The scale includes six subdomains: nonacceptance of emotional responses, difficulties engaging in goal-directed behavior,

impulse control difficulties, lack of emotional awareness, limited access to effective emotion regulation strategies, and lack of emotional clarity. Items are rated on a five-point Likert scale ranging from 1 (Almost Never) to 5 (Almost Always), with several items reverse scored. Total scores range from 36 to 180, with higher scores indicating greater difficulties in emotion regulation. The DERS has demonstrated strong psychometric properties across different populations. In the original validation study, the scale exhibited excellent internal consistency, with a Cronbach's alpha coefficient of .93. Subsequent validation studies have reported similarly high reliability estimates, supporting its suitability for assessing emotion regulation difficulties among adolescents and adults.

2.3. Intervention

The intervention implemented in this study was Emotional Schema Therapy (EST), originally developed by Leahy (2002) as an extension of cognitive-behavioral therapy emphasizing the role of emotional beliefs, emotional acceptance, emotional validation, and adaptive emotional expression. The intervention was delivered to the experimental group in twelve weekly sessions, each lasting approximately 60 minutes. The initial sessions focused on establishing a therapeutic alliance, introducing the treatment model, and increasing participants' awareness of emotions and maladaptive emotional schemas. Subsequent sessions emphasized identifying problematic emotional beliefs, challenging dysfunctional emotional schemas, enhancing emotional awareness, differentiating emotional experiences, and examining the relationships between emotional schemas and maladaptive coping strategies. Participants were guided through self-monitoring exercises, emotional self-assessment activities, and exploration of cognitive, physiological, and behavioral consequences of emotional reactions. The middle phase of treatment focused on emotional expression, emotional processing through therapeutic writing, social support utilization, compassionate letter writing, and the development of interpersonal effectiveness skills such as assertive communication and conflict resolution. Later sessions emphasized emotional acceptance, emotional validation, behavioral experiments designed to challenge dysfunctional emotional beliefs, identification of positive emotional experiences, and reduction of emotional avoidance and suppression. The final sessions were devoted to reviewing therapeutic gains, consolidating learned skills, promoting generalization of emotion regulation strategies to daily life situations, developing relapse prevention plans, and conducting the posttest assessment. Homework assignments were integrated throughout the intervention to reinforce session content and facilitate skill acquisition outside the therapeutic setting.

2.4. Data Analysis

Data were analyzed using IBM SPSS Statistics version 27. Descriptive statistical indices, including frequencies, percentages, means, and standard deviations, were calculated to summarize participant characteristics and study variables. Prior to hypothesis testing, the assumptions underlying multivariate analysis were examined. Inferential analyses were conducted using Multivariate Analysis of Covariance (MANCOVA) to evaluate post-intervention differences between the experimental and control groups while controlling for pretest scores. This analytical approach allowed for the simultaneous examination of multiple dimensions of executive functioning and provided a comprehensive assessment of the effectiveness of Emotional Schema Therapy on executive function outcomes among adolescents with emotional dysregulation.

3. Findings and Results

The sample consisted of 30 adolescents who were equally allocated to the experimental and control groups (15 participants in each group, representing 50% of the total sample). In the control group, the highest frequency was observed among 16-year-old and 18-year-old adolescents (33.3% each), whereas in the experimental group, the largest proportion of participants were 17 years old (53.4%). Although slight differences existed in the age distribution between the groups, participants were evenly distributed across the experimental and control conditions.

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Table 1

Descriptive Statistics for Executive Function Subscales by Group at Pretest and Posttest

Scale	Group	Pretest Mean	Posttest Mean	Pretest SD	Posttest SD	Pretest Kurtosis	Pretest Skewness	Posttest Kurtosis	Posttest Skewness
Inhibition	Experimental	8.80	14.86	1.78	2.23	0.82	1.03	-0.27	-0.26
	Control	8.66	9.00	1.98	1.96	-0.70	0.34	-0.17	-0.13
Shift of Attention	Experimental	9.53	14.96	2.54	3.31	-1.01	0.25	0.25	1.22
	Control	8.87	8.00	2.85	3.40	0.11	-0.43	0.60	-0.71
Emotional Control	Experimental	6.40	12.33	0.63	2.48	-0.38	-0.54	-1.61	0.78
	Control	5.06	6.10	0.59	0.45	0.53	0.00	1.27	0.35
Initiation	Experimental	6.13	15.06	1.35	2.66	0.12	0.71	-1.69	-0.01
	Control	5.80	6.20	1.14	1.26	2.00	-0.53	0.23	1.03
Working Memory	Experimental	7.73	14.73	1.34	2.88	-0.76	0.21	-1.49	0.60
	Control	6.93	8.80	1.53	1.78	1.06	-0.42	-0.19	-0.35
Planning	Experimental	5.20	13.46	1.61	2.74	0.72	0.68	0.47	0.33
	Control	5.66	6.86	1.49	1.40	0.26	0.95	1.56	-1.50
Organization of Materials	Experimental	8.46	13.33	1.41	3.32	0.31	0.40	0.16	1.34
	Control	7.46	4.86	1.16	1.64	2.00	1.09	-0.96	0.13
Monitoring	Experimental	5.46	12.53	0.99	1.92	-0.24	0.47	1.62	1.67
	Control	5.53	6.66	1.72	1.75	0.11	-0.01	0.60	-0.50
Total Executive Functions	Experimental	57.71	111.26	11.65	21.54	-0.59	0.51	0.68	0.28
	Control	53.97	56.48	12.46	13.64	-0.73	0.12	-0.81	-0.41

Table 1 presents the descriptive statistics for the 86-item Executive Function Questionnaire. The results indicate that the mean scores of the experimental group increased substantially from pretest to posttest across all executive function subscales. Specifically, inhibition scores increased from 8.80 to 14.86, shift of attention from 9.53 to 14.96, emotional control from 6.40 to 12.33, initiation from 6.13 to 15.06, working memory from 7.73 to 14.73, planning from 5.20 to 13.46, organization of materials from 8.46 to 13.33, and monitoring from 5.46 to 12.53. In contrast, the control group exhibited only minor fluctuations that largely reflected normal variation. Furthermore, the mean total executive function score in the experimental group increased from 57.71 to 111.26, whereas the control group showed only a slight increase from 53.97 to 56.48. This pattern suggests a positive effect of the intervention on executive functioning among participants in the experimental group. In addition, skewness and kurtosis values for all variables were within acceptable ranges, indicating approximately normal distributions and supporting the suitability of the data for inferential statistical analyses.

As previously stated, this study examined the effect of Emotional Schema Therapy on executive functions among adolescents with emotional dysregulation. Multivariate Analysis of Covariance (MANCOVA) was employed to test the study hypotheses. The significance level was set at .05, and partial eta squared was used as the measure of effect size. Prior to conducting the analyses, the assumptions underlying MANCOVA were evaluated. The findings indicated that the data were normally distributed across the measured variables. In addition, the assumptions of homogeneity of variances and homogeneity of covariance matrices were satisfied, as indicated by non-significant Levene's and Box's M tests ($p > .05$).

To further evaluate the study hypotheses, the assumptions required for MANCOVA were examined. Levene's test demonstrated that the significance values for all dependent variables exceeded .05, indicating that the assumption of homogeneity of variances was met and that error variances were equal across the experimental and control groups. Furthermore, Box's M test was conducted to assess the homogeneity of covariance matrices and yielded a non-significant result ($p = .674$), confirming that the covariance matrices of the dependent variables were homogeneous across groups. The MANCOVA results revealed significant differences between the experimental and control groups on the executive function dimensions. These differences were statistically significant at the .001 level, indicating that at least one of the executive function variables changed significantly following the intervention. The interaction effects further demonstrated that Emotional Schema Therapy produced significant improvements in the study variables. Specifically, Emotional Schema Therapy resulted in enhanced executive functioning, and these effects

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remained significant after controlling for pretest scores as covariates.

Table 2

Multivariate Analysis of Covariance (MANCOVA) Results for the Effect of Group on Executive Function Dimensions

Source	Scale	Sum of Squares	df	Mean Square	F	p
Group	Inhibition	49,475.95	1	49,475.95	132.84	< .001
	Shift of Attention	85,765.45	1	85,765.45	414.53	< .001
	Emotional Control	75,854.33	1	75,854.33	352.38	< .001
	Initiation	38,595.85	1	38,595.85	110.98	< .001
	Working Memory	54,950.96	1	54,950.96	160.35	< .001
	Planning	49,598.85	1	49,598.85	143.95	< .001
	Organization of Materials	85,676.72	1	85,676.72	403.35	< .001
	Monitoring	86,843.39	1	86,843.39	432.41	< .001

The results of the MANCOVA are presented in Table 2. The effect of group membership on the executive function subscales demonstrated that the intervention had a statistically significant impact on all dimensions of executive functioning. Specifically, significant group effects were observed for inhibition, $F(1, 27) = 132.84$, $p < .001$; shift of attention, $F(1, 27) = 414.53$, $p < .001$; emotional control, $F(1, 27) = 352.38$, $p < .001$; initiation, $F(1, 27) = 110.98$, $p < .001$; working memory, $F(1, 27) = 160.35$, $p < .001$; planning, $F(1, 27) = 143.95$, $p < .001$; organization of materials, $F(1, 27) = 403.35$, $p < .001$; and monitoring, $F(1, 27) = 432.41$, $p < .001$. These findings indicate that the intervention significantly improved all executive function subscales in the experimental group, and the observed differences remained significant after controlling for pretest scores. Therefore, it can be concluded that Emotional Schema Therapy was effective in enhancing executive functioning dimensions among adolescents with emotional dysregulation when baseline performance was statistically controlled as a covariate.

4. Discussion

The present study aimed to investigate the effectiveness of Emotional Schema Therapy (EST) on executive functions among adolescents with emotional dysregulation in Isfahan. The findings demonstrated that Emotional Schema Therapy produced significant improvements across all dimensions of executive functioning, including inhibition, attentional shifting, emotional control, initiation, working memory, planning, organization of materials, and monitoring. The results of the multivariate analysis of covariance indicated that the experimental group showed significantly higher posttest scores than the control group after controlling for pretest differences. These findings suggest that Emotional Schema Therapy is an effective intervention for enhancing executive functioning among adolescents experiencing difficulties in emotion regulation. The substantial increases observed in both individual executive function components and overall executive functioning scores indicate that addressing maladaptive emotional schemas may contribute not only to emotional adjustment but also to cognitive and behavioral self-regulation capacities.

One explanation for these findings is rooted in the theoretical foundations of Emotional Schema Therapy. According to schema theory, maladaptive emotional schemas influence how individuals perceive, interpret, and respond to emotional experiences. Adolescents with emotional dysregulation frequently hold dysfunctional beliefs about emotions, such as perceiving emotions as uncontrollable, dangerous, shameful, or unacceptable. These beliefs often lead to avoidance, suppression, rumination, impulsive reactions, and ineffective coping strategies. Such responses consume substantial cognitive resources that would otherwise be available for executive processes such as attention regulation, planning, inhibitory control, and working memory. Emotional Schema Therapy directly targets these maladaptive beliefs by promoting emotional acceptance, validation, awareness, and adaptive emotional expression. As dysfunctional emotional schemas become modified, adolescents may experience reduced emotional burden and greater cognitive flexibility, thereby improving executive functioning (Young & Klosko, 2003).

The observed improvement in inhibition is particularly noteworthy. Inhibitory control represents one of the core components of executive functioning and plays a critical role in regulating impulsive behaviors and inappropriate responses. Adolescents with emotional dysregulation often

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struggle to inhibit emotional reactions when confronted with stressful or emotionally charged situations. Through Emotional Schema Therapy, participants learn to recognize emotional triggers, challenge maladaptive interpretations, and tolerate emotional experiences without engaging in automatic behavioral responses. As a result, they become better able to pause, reflect, and respond deliberately rather than impulsively. This interpretation is consistent with findings indicating that interventions targeting emotional processing and self-regulation can enhance functional outcomes and adaptive behavioral control (Harmancı & Yıldız, 2023). Furthermore, previous research has demonstrated that adolescents with emotional and behavioral difficulties frequently exhibit deficits in inhibitory control, suggesting that interventions addressing emotional regulation may be particularly beneficial for this aspect of executive functioning (Anisi et al., 2007).

The significant improvement observed in attentional shifting may also be explained by changes in emotional processing. Adolescents who experience emotional dysregulation often become cognitively trapped in repetitive negative thoughts, emotional preoccupations, or rigid patterns of interpretation. Such tendencies reduce cognitive flexibility and impair the ability to shift attention efficiently between tasks or perspectives. Emotional Schema Therapy encourages individuals to examine alternative interpretations of emotional experiences, reconsider rigid emotional beliefs, and develop greater psychological flexibility. Through repeated practice of these skills, participants may become more capable of disengaging from maladaptive thought patterns and redirecting attention toward goal-relevant information. This explanation aligns with broader perspectives emphasizing the importance of psychological equilibrium and adaptive emotional functioning in supporting flexible cognitive processes and overall health outcomes (Jiang et al., 2025).

The findings related to emotional control further support the central assumptions of Emotional Schema Therapy. Emotional control refers to the ability to manage emotional reactions effectively while maintaining adaptive functioning. Because Emotional Schema Therapy specifically focuses on emotional awareness, acceptance, validation, and regulation, improvements in emotional control were expected. The intervention teaches adolescents that emotions are normal and meaningful experiences rather than threats that must be suppressed or avoided. As participants develop healthier beliefs about emotions, they become better equipped to regulate emotional intensity and respond constructively to challenging situations. These findings are consistent with previous studies demonstrating that Emotional Schema Therapy significantly improves emotion regulation capacities across different populations. For example, Ahmadi and Kadkhodaei reported significant improvements in cognitive emotion regulation among adolescents with social anxiety disorder following Emotional Schema Therapy (Ahmadi & Kadkhodaei, 2023). Similarly, Ghaitasi and Amani found that Emotional Schema Therapy effectively enhanced emotion regulation strategies among adolescents with oppositional defiant disorder (Ghaitasi & Amani, 2025).

The improvements observed in initiation, working memory, and planning may reflect the reduction of emotional interference in cognitive functioning. Emotional dysregulation often disrupts goal-directed behavior because emotional distress consumes attentional resources and interferes with cognitive processing. Adolescents experiencing high levels of emotional distress may find it difficult to initiate tasks, maintain information in working memory, or organize activities effectively. By reducing emotional avoidance and increasing emotional acceptance, Emotional Schema Therapy may allow cognitive resources to be redirected toward adaptive executive processes. Participants learn to tolerate emotional discomfort while continuing to pursue meaningful goals, thereby strengthening cognitive capacities related to planning and task execution. These findings support theoretical models proposing that emotional regulation and executive functioning are deeply interconnected and mutually influential processes (Jiang et al., 2025; Young & Klosko, 2003).

The significant enhancement in organization of materials and monitoring abilities may be interpreted within the context of improved self-regulation. Monitoring involves the ability to evaluate one's behavior, recognize errors, and make necessary adjustments, whereas organization of materials reflects effective management of environmental resources and task demands. Emotional dysregulation often compromises these skills because emotional reactions may dominate attention and reduce awareness of performance outcomes. Through self-reflective exercises, behavioral experiments, emotional monitoring worksheets, and homework assignments, Emotional Schema Therapy encourages adolescents to develop greater awareness of their emotional and behavioral patterns. This increased self-awareness may contribute to more effective monitoring and organizational skills. Similar conclusions have been reported

in studies emphasizing the role of structured psychological interventions in improving functionality, self-management, and adaptive performance across diverse populations (Harmancı & Yıldız, 2023).

The findings of the present study are also consistent with broader schema theory and research examining the influence of maladaptive schemas on adolescent functioning. Previous investigations have shown that maladaptive schemas are associated with social difficulties, emotional problems, and behavioral maladjustment among adolescents. Shahvarooghi Farahani found that maladaptive parental schemas were significant predictors of adolescents' social skills, highlighting the important role of schema-related processes in adolescent adjustment (Shahvarooghi Farahani, 2022). Because schemas influence how individuals interpret experiences and regulate emotions, modifying dysfunctional emotional schemas may naturally lead to improvements in cognitive and behavioral functioning. The current findings extend this body of literature by demonstrating that changes in emotional schemas may also produce meaningful improvements in executive functioning.

The effectiveness of Emotional Schema Therapy observed in the present study is further supported by previous evidence regarding schema-based interventions. Schema Therapy has consistently demonstrated positive effects across a wide range of psychological disorders and maladaptive behavioral patterns. In a landmark multicenter randomized controlled trial, Schema Therapy was shown to produce significant clinical improvements among individuals with personality disorders and to outperform alternative treatment approaches in several domains of psychological functioning (Bamelis et al., 2014). Although the present study focused specifically on Emotional Schema Therapy and executive functioning, the findings reinforce the broader conclusion that schema-focused interventions represent powerful mechanisms for facilitating cognitive, emotional, and behavioral change.

The results may also be understood within developmental frameworks emphasizing the unique characteristics of adolescence. Adolescence is a period of substantial neurological maturation, particularly within brain regions associated with executive functioning and emotional regulation. Because these systems continue to develop throughout adolescence, therapeutic interventions may exert particularly strong effects during this developmental stage. By teaching adolescents adaptive emotional skills while executive functions remain malleable, Emotional Schema Therapy may facilitate long-term improvements in self-regulation and psychological adjustment (Mohseni & Ahadinezhad, 2002). Furthermore, family and environmental influences play a significant role in shaping adolescent emotional development. Research has demonstrated that interventions targeting emotional and behavioral functioning can positively affect adolescents' adaptation and well-being, highlighting the importance of early and developmentally appropriate interventions (Saadatian & Shirafkan, 2018).

The present findings are also consistent with contemporary perspectives emphasizing the importance of supportive emotional environments and psychological belongingness. Adolescents who learn to accept and validate their emotional experiences may develop greater psychological security and self-efficacy, which in turn facilitate adaptive cognitive functioning. Creating conditions that support emotional expression and acceptance has been identified as a critical factor in promoting psychological health and resilience across mental health contexts (Lazaridou & Heinz, 2021). Emotional Schema Therapy directly cultivates such conditions by encouraging adolescents to view emotions as understandable and manageable experiences rather than sources of threat or inadequacy.

Although the study focused primarily on executive functioning, the findings may have broader implications for psychological health and social functioning. Executive functions contribute substantially to academic achievement, interpersonal competence, emotional adjustment, and behavioral regulation. Improvements in these capacities may therefore produce cascading benefits across multiple domains of adolescent life. The interconnected nature of emotional regulation, cognitive functioning, and social adaptation suggests that interventions such as Emotional Schema Therapy may serve as comprehensive approaches to promoting adolescent mental health. Moreover, research from diverse fields indicates that adaptive self-regulation contributes to prosocial behavior, effective decision-making, and successful social interactions, further emphasizing the significance of strengthening executive functions during adolescence (Massen et al., 2011).

5. Conclusion

Overall, the findings provide strong evidence that Emotional Schema Therapy is an effective intervention for improving executive functioning among adolescents with emotional dysregulation. By targeting maladaptive

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emotional beliefs and promoting adaptive emotional processing, the intervention appears to enhance a broad range of cognitive processes that are essential for self-regulation, psychological adjustment, and successful functioning. The results contribute to the growing literature supporting schema-based interventions and highlight the importance of addressing emotional schemas as a means of improving both emotional and cognitive outcomes among adolescents.

6. Limitations & Suggestions

Several limitations should be considered when interpreting the findings of this study. First, the sample size was relatively small, which may limit the generalizability of the results to broader adolescent populations. Second, participants were recruited from counseling centers in a single city, reducing the representativeness of the sample. Third, the study relied primarily on questionnaire-based assessments, which may be influenced by reporting biases. Fourth, the absence of a follow-up assessment prevented evaluation of the long-term maintenance of treatment gains. Finally, potential moderating variables such as family functioning, socioeconomic status, academic achievement, and comorbid psychological conditions were not examined and may have influenced treatment outcomes.

Future studies should replicate the present findings using larger and more diverse samples drawn from different geographic regions and cultural contexts. Longitudinal research designs incorporating multiple follow-up assessments would help determine the durability of treatment effects over time. Researchers may also compare Emotional Schema Therapy with other evidence-based interventions to identify relative effectiveness and underlying mechanisms of change. Investigating mediating variables such as emotional awareness, cognitive flexibility, psychological resilience, and self-efficacy could provide a deeper understanding of how Emotional Schema Therapy influences executive functioning. Additionally, future studies may explore the effectiveness of this intervention among adolescents with specific clinical disorders, different age groups, or varying levels of emotional dysregulation.

The findings suggest that Emotional Schema Therapy may be incorporated into school counseling programs, youth mental health services, and community-based psychological interventions targeting adolescents. Mental health professionals can use emotional schema-focused techniques to enhance emotional awareness, emotional acceptance, and self-regulation skills among young people experiencing emotional difficulties. Educational settings may benefit from integrating emotional schema concepts into social-emotional learning programs to strengthen executive functioning and adaptive coping skills. Training counselors, psychologists, and educators in Emotional Schema Therapy principles may increase the availability of effective interventions for adolescents at risk of emotional and behavioral problems. Early implementation of such interventions may contribute to improved academic performance, healthier interpersonal relationships, and greater overall psychological well-being among adolescents.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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